INTRODUCTION

The purpose of this report is to describe the Phase II testing of 32 prehistoric archaeological sites located within the Early Action Segment of the State Route 1 Relief Route (Figures 1 and 2) from Duck Creek Road (New Castle 486) in New Castle County to Dover Air Force Base in Kent County, Delaware. This segment is the first portion of a proposed 48-mile limited access highway extending from Tybouts Corner in New Castle County to the areas of Frederica and Felton in Kent County. The segment includes 17.0 miles (27.2 km) of proposed right-of-way (ROW) and is designed to provide relief for various critical transportation problems in the Dover and Smyrna areas. The survey was conducted between September, 1987 and February, 1990 by the University of Delaware Center for Archaeological Research (UDCAR) for the Delaware Department of Transportation (DelDOT) and the Federal Highway Administration (FHWA) under Section 106 of the National Historic Preservation Act of 1966 and Section 138 of the Federal Highway Act. Funding for the project was provided by the Delaware Department of Transportation and the Federal Highway Administration. The goals of the Phase II testing were to identify the limits, significance, and eligibility for listing on the National Register of Historic Places (36CFR60) of the prehistoric sites identified by the Phase I Survey (Bachman, Grettler, and Custer 1988) that may be adversely affected by the proposed relief route.

Forty-five prehistoric sites were identified in the Phase I survey (Bachman et al. 1988), and at the completion of the Phase I survey of the project area, three major categories of prehistoric sites were identified with regard to their potential for providing data significant to current research issues in Delaware and the Middle Atlantic Region. Category 1 sites were those encompassing the largest areas and which were known to contain or predicted to contain undisturbed subsurface features. These sites were considered to have the highest potential for National Register eligibility (Bachman et al. 1988:123). Category 2 sites consisted of those with moderate potential for significance (Bachman et al. 1988:123-125). Category 3 sites were those mainly consisting of small lithic scatters and spot finds. These sites were considered to hold very low potential for significance (Bachman et al. 1988:125-126). Consistent with the research plan (Custer, Bachman, and Grettler 1987:21) which suggests that only a sample of such sites be subjected to intensive Phase II research, it was recommended that a stratified sample of the Category 3 sites be developed for proposed Phase II testing (Bachman et al. 1988:125-126). It was further recommended that the stratification be based on topographic setting, diversity of the artifact assemblages, integrity of the sites, and the potential effect of the project on the sites. Therefore, the following 10 sites were **not** included in the Category 3 sample: 7K-C-370, STP 8-29-B, 7K-C-372, 7K-C-207, 7K-C-208, 7K-C-136, and the Knott's A, B, C, and E sites.

In addition to the 10 sites discussed above, one site cluster identified by the Phase I survey, consisting of the Carey Farm site (7K-D-3) and the Island Farm site (7K-C-13) at the southern end of the project area, required especially intensive Phase II research to determine its eligibility to the National Register of Historic Places because one part of the cluster (the Carey Farm site - 7K-D-3) was already listed on the National Register of Historic Places (Delaware Division of Historic and Cultural Affairs 1977). The sites within this cluster will not be discussed here but will be the subject of a separate Phase II/III report. Finally, the Lewis-C Complex (7K-C-361), located north of Dover, was removed from the schedule for Phase II testing when an alignment shift by DelDOT cleared this cluster from potential impact.

One site cluster, the Leipsic Complex (7K-C-203, 7K-C-204, 7K-C-194, 7K-C-195, and 7K-C-194A), located within the proposed right-of-way on the north and south sides of the Leipsic River, and two additional sites, the Dover Downs site (7K-C-365A) and site 7K-C-360, also required intensive Phase II testing. In addition to summaries included in this report, these three prehistoric loci will be discussed in separate, more comprehensive Phase III reports.

The current status of all 45 prehistoric sites located within the Early Action Segment is summarized in Table 1. A summary of the Phase I Survey and the Phase II Survey results is presented for each of the 32 prehistoric sites that underwent Phase II testing. The sites are presented from north to south within the Early Action Segment.

FIGURE 1

Delaware Route 1 Corridor, Early Action Segment, with Sites Designated

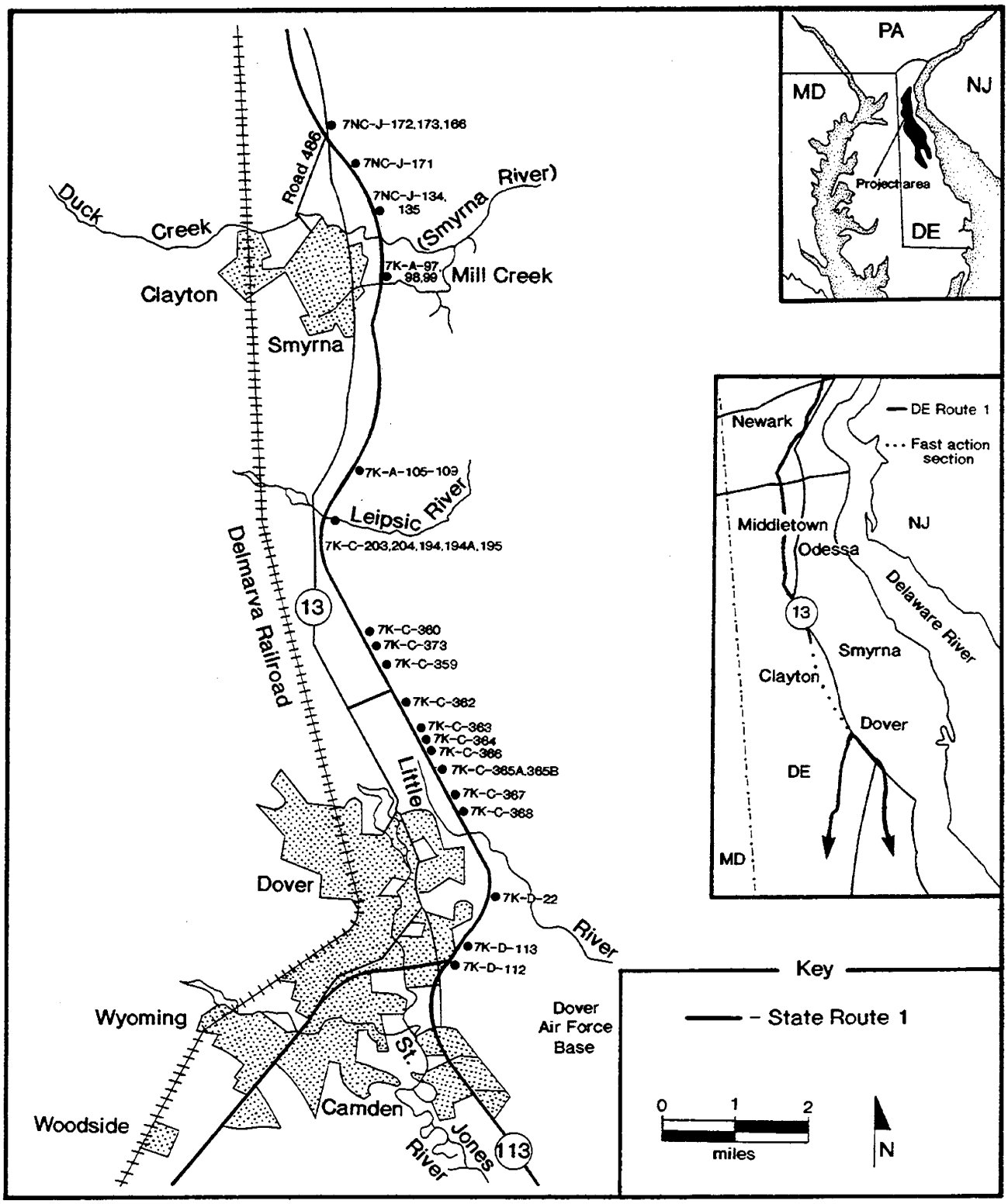
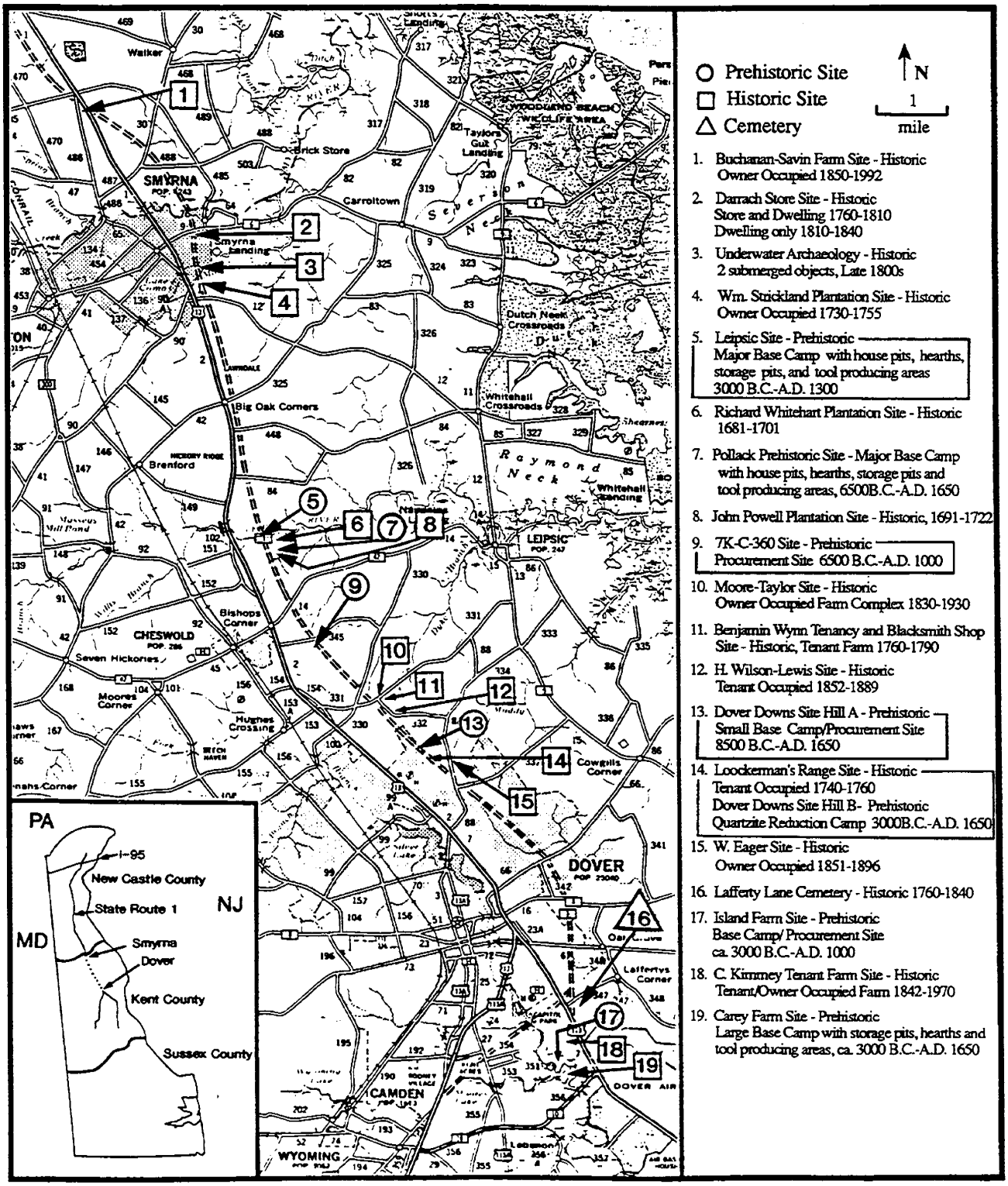


FIGURE 2

Sites Along the Delaware Route 1 Corridor

Major Mitigation Sites



1. Buchanan-Savin Farm Site - Historic
   Owner Occupied 1850-1992
2. Darrach Store Site - Historic
   Store and Dwelling 1760-1810
   Dwelling only 1810-1840
3. Underwater Archaeology - Historic
   2 submerged objects, Late 1800s
4. Wm. Strickland Plantation Site - Historic
   Owner Occupied 1730-1755
5. Leipsic Site - Prehistoric
   Major Base Camp with house pits, hearths, storage pits, and tool producing areas
   3000 B.C.-A.D. 1300
6. Richard Whitehart Plantation Site - Historic
   1681-1701
7. Pollack Prehistoric Site - Major Base Camp
   with house pits, hearths, storage pits and tool producing areas, 6500B.C.-A.D. 1650
8. John Powell Plantation Site - Historic, 1691-1722
9. 7K-C-360 Site - Prehistoric
   Procurement Site 6500 B.C.-A.D. 1000
10. Moore-Taylor Site - Historic
    Owner Occupied Farm Complex 1830-1930
11. Benjamin Wynn Tenancy and Blacksmith Shop Site - Historic, Tenant Farm 1760-1790
12. H. Wilson-Lewis Site - Historic
    Tenant Occupied 1852-1889
13. Dover Downs Site Hill A - Prehistoric
    Small Base Camp/Procurement Site
    8500 B.C.-A.D. 1650
14. Loockerman's Range Site - Historic
    Tenant Occupied 1740-1760
    Dover Downs Site Hill B- Prehistoric
    Quartzite Reduction Camp 3000B.C.-A.D. 1650
15. W. Eager Site - Historic
    Owner Occupied 1851-1896
16. Lafferty Lane Cemetery - Historic 1760-1840
17. Island Farm Site - Prehistoric
    Base Camp/ Procurement Site
    ca. 3000 B.C.-A.D. 1000
18. C. Kimmey Tenant Farm Site - Historic
    Tenant/Owner Occupied Farm 1842-1970
19. Carey Farm Site - Prehistoric
    Large Base Camp with storage pits, hearths and tool producing areas, ca. 3000 B.C.-A.D. 1650

TABLE 1

CURRENT STATUS OF ALL PREHISTORIC SITES WITHIN THE DELAWARE ROUTE 1 CORRIDOR EARLY ACTION SEGMENT

Site	Phase I I.D.	Phase I Testing	Phase II Testing	N.R. Eligible	Further Work Recommended
7NC-J-172	39	Completed	Completed	No	None
7NC-J-173	38	Completed	Completed	No	None
7NC-J-166	40	Completed	Completed	No	None
7NC-J-171	36	Completed	Completed	No	None
7NC-J-134	34	Completed	Completed	No	None
7NC-J-135	35	Completed	Completed	No	None
7K-A-97	33	Completed	Completed	No	None
7K-A-98	33	Completed	Completed	No	None
7K-A-99	33	Completed	Completed	No	None
7K-A-105	32	Completed	Completed	No	None
7K-A-106	32	Completed	Completed	No	None
7K-A-107	32	Completed	Completed	No	None
7K-A-108	32	Completed	Completed	No	None
7K-A-109	32	Completed	Completed	No	None
7K-C-373	25	Completed	Completed	No	None
7K-C-360	26	Completed	Completed	Yes	Data Recovery
7K-C-359	24	Completed	Completed	No	None
7K-C-362	22	Completed	Completed	No	None
7K-C-366	18	Completed	Completed	No	None
7K-C-364	19	Completed	Completed	No-in ROW Yes-outside ROW	None
7K-C-363	20	Completed	Completed	No-in ROW Yes-outside ROW	None
7K-C-365A/B	17	Completed	Completed	Yes	Data Recovery
7K-C-365B	17	Completed	Completed	No	None
7K-C-367	14	Completed	Completed	No	None
7K-C-368	13	Completed	Completed	No	None
7K-D-22	11	Completed	Completed	No	None
7K-D-112	8	Completed	Completed	No	None
7K-D-113	9	Completed	Completed	No	None
7K-D-3	1	Completed	Completed	Yes	Data Recovery
7K-C-13	3	Completed	Completed	Yes	Data Recovery
7K-C-203	28	Completed	Completed	No	None
7K-C-204	29	Completed	Completed	No	None
7K-C-194A	30	Completed	Completed	Yes	Data Recovery
7K-C-194		Completed	Completed	No	None
7K-C-195		Completed	Completed	No	None

TABLE 1 (continued)

CURRENT STATUS OF ALL PREHISTORIC SITES
WITHIN THE DELAWARE ROUTE 1 CORRIDOR EARLY ACTION SEGMENT

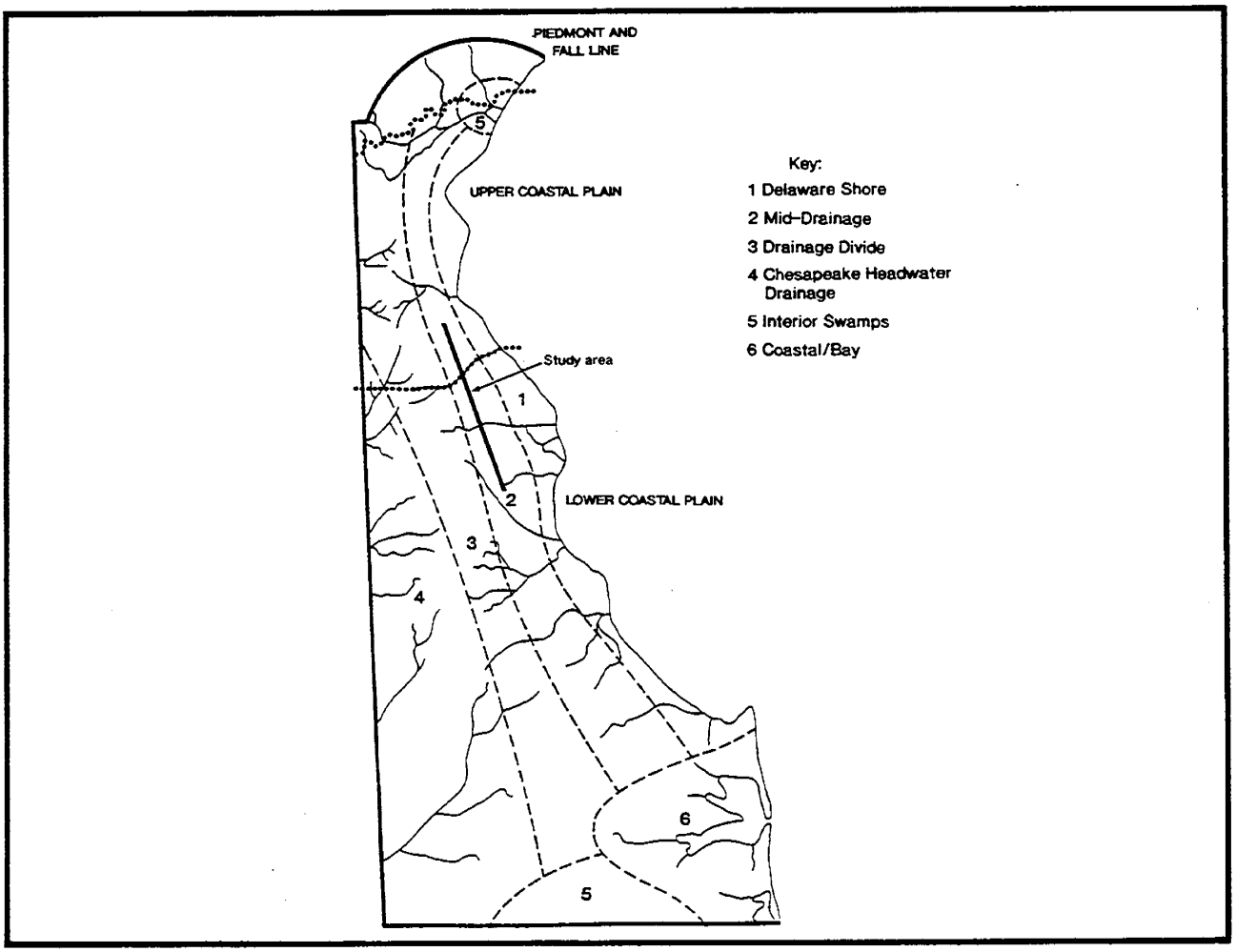
Site	Phase I I.D.	Phase I Testing	Phase II Testing	N.R. Eligible	Further Work Recommended
7K-C-361		Completed	Eliminated Due to Alignment Shift	N/A	N/A
7K-C-370		Completed	Deleted from Category 3 Sample	No	None
STP 8-29-B		Completed	Deleted from Category 3 Sample	No	None
7K-C-372		Completed	Deleted from Category 3 Sample	No	None
7K-C-207		Completed	Deleted from Category 3 Sample	No	None
7K-C-208		Completed	Deleted from Category 3 Sample	No	None
7NC-J-136		Completed	Deleted from Category 3 Sample	No	None
Knott's-A		Completed	Deleted from Category 3 Sample	No	None
Knott's-B		Completed	Deleted from Category 3 Sample	No	None
Knott's-C		Completed	Deleted from Category 3 Sample	No	None
Knott's-E		Completed	Deleted from Category 3 Sample	No	None

ENVIRONMENTAL SETTING

The project area is located primarily in Kent County (Figure 2) within the Mid-Drainage Zone of the Low Coastal Plain Physiographic Province (Figure 3). The Low Coastal Plain is underlain by the sand deposits of the Columbia Formation (Jordan 1964:40), and reworking of these sediments has produced a relatively flat and featureless landscape. Elevation differences range up to 30 feet (10 meters), and these small differences are moderated by long gradual slopes. These differences are, nonetheless, sufficient to cause differential distribution of plant and animal species. The Mid-Drainage Zone is a strip of land located between the Delaware Shore and the

FIGURE 3

Physiographic Zones of Delaware

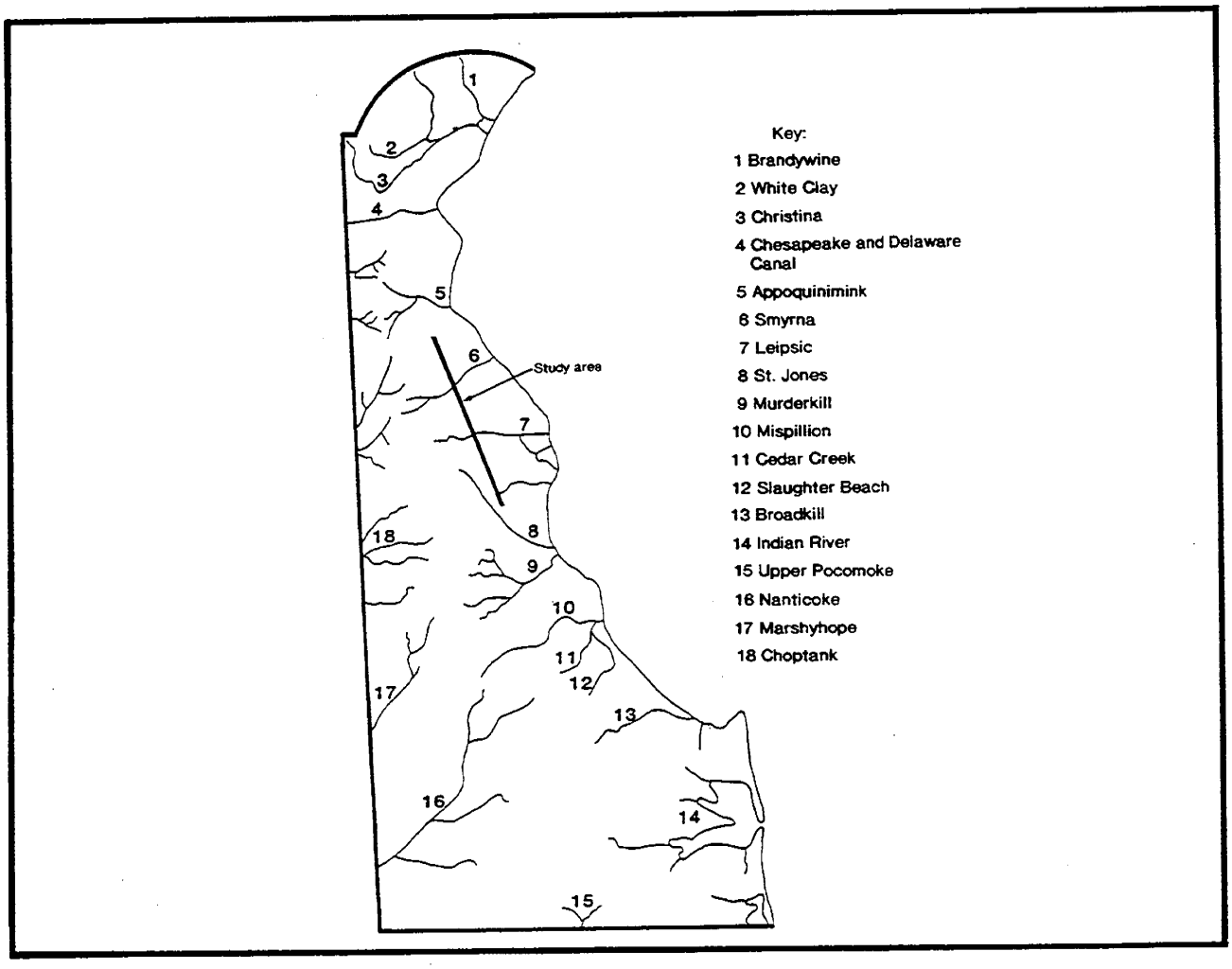


Mid-Peninsular Drainage Divide and includes the central sections of all the Coastal Plain tributaries of the Delaware River (Figure 4). The modern tidal limit along the drainages marks the center of the zone, and the major drainages and their tributaries are fresh throughout the inland half of the zone. Some tidal marshes and poorly-drained areas are found on isolated headlands between major drainages and their tributaries. The combination of brackish and freshwater resources makes this zone one of the most intensively occupied areas in prehistoric times in Delaware (Custer 1984a, Custer and De Santis 1986).

The Early Action Segment of the State Route 1 Relief Route crosses several major east-flowing streams in Kent County, including Muddy Branch, Little River, Leipsic River, Mill Creek, and Duck Creek. All drain to Delaware Bay and the latter three show sizable tidal movement at the point where the proposed roadway will cross. Several named and unnamed low order tributaries of these streams are also traversed. Freshwater swamps in low-lying and poorly drained areas are found primarily in the southern part of the project area and are most common between Lafferty Lane and Kent Road 345.

FIGURE 4

Drainage Locations



A variety of soils are present in the project area. The 24 individual soil series present can be grouped into primarily the Sassafras-Fallsington and Othello-Matapeake-Mattapex associations (Matthews and Lavoie 1970). The upper elevations of the project area are more commonly composed of orange-brown, orange, and yellow-brown moderately- to well-drained Sassafras sands, sandy silts, and silty loams, while the lower elevation areas are comprised of gray and buff moderately- to poorly-drained Fallsington and Othello clayey sands, sandy clays, and silty clays which support mixed hydrophytic plant species. The soil types are distributed throughout the project area in a complex mosaic of well-drained and poorly-drained settings. The locations at the interface of well-drained and poorly-drained soils are favorable locations for prehistoric sites and there are many such locations in the project area.

PRESENT DAY/MODERN ENVIRONMENTAL SETTING

Since the arrival of Europeans and the colonization of the region, land use in the project area has been primarily agricultural. Dispersed farmsteads ranging in size from 100 to 800 acres were initially established in the early eighteenth century; however, over the years local farms have slowly decreased in size. Historically, the

population of the project area was involved in agriculture and its supporting occupations, such as milling and blacksmithing. Since the early 1960s, portions of the project area have been drastically altered at an increasingly rapid rate through commercial, industrial, and especially, residential development. Development in other areas has been slight, especially in poorly drained areas. The cultural resources of the developing portions of the project area have been significantly disturbed by new or recent construction. Other portions of the project area have not been significantly altered.

REGIONAL PREHISTORY

This summary of the regional prehistory is abstracted from the work of Custer (1984a, 1989). The prehistoric archaeological record of the Delaware Coastal Plain can be divided into four large blocks of time: The Paleo-Indian Period (c.a. 12,000 B.C. - 6500 B.C.); the Archaic Period (6500 B.C. - 3000 B.C.); the Woodland I Period (3000 B.C. - A.D. 1000); and the Woodland II Period (A.D. 1000 - A.D. 1650). A fifth time period, the Contact Period, from A.D. 1650 to A.D. 1750, marks the final phase of occupation by Native American groups of Delaware in anything resembling their pre-European Contact form. Each of these periods is described below (Figure 5).

Paleo-Indian Period (12,000 B.C. - 6500 B.C.)

The Paleo-Indian Period encompasses both the final retreat of Pleistocene glacial conditions from eastern North America and the subsequent establishment of more modern Holocene environments. The distinctive feature of the Paleo-Indian Period is an adaptation to the cold, and alternately wet and dry, conditions at the end of the Pleistocene and the beginning of the Holocene. Paleo-Indians relied on a hunting and gathering adaptation in which animal food resources comprised a major portion of the diet. Hunted animals may have included now-extinct megafauna and moose. A mosaic of deciduous, boreal, and grassland environments would have provided a large number of productive habitats for these game animals in central Delaware and watering areas would have been particularly good hunting settings.

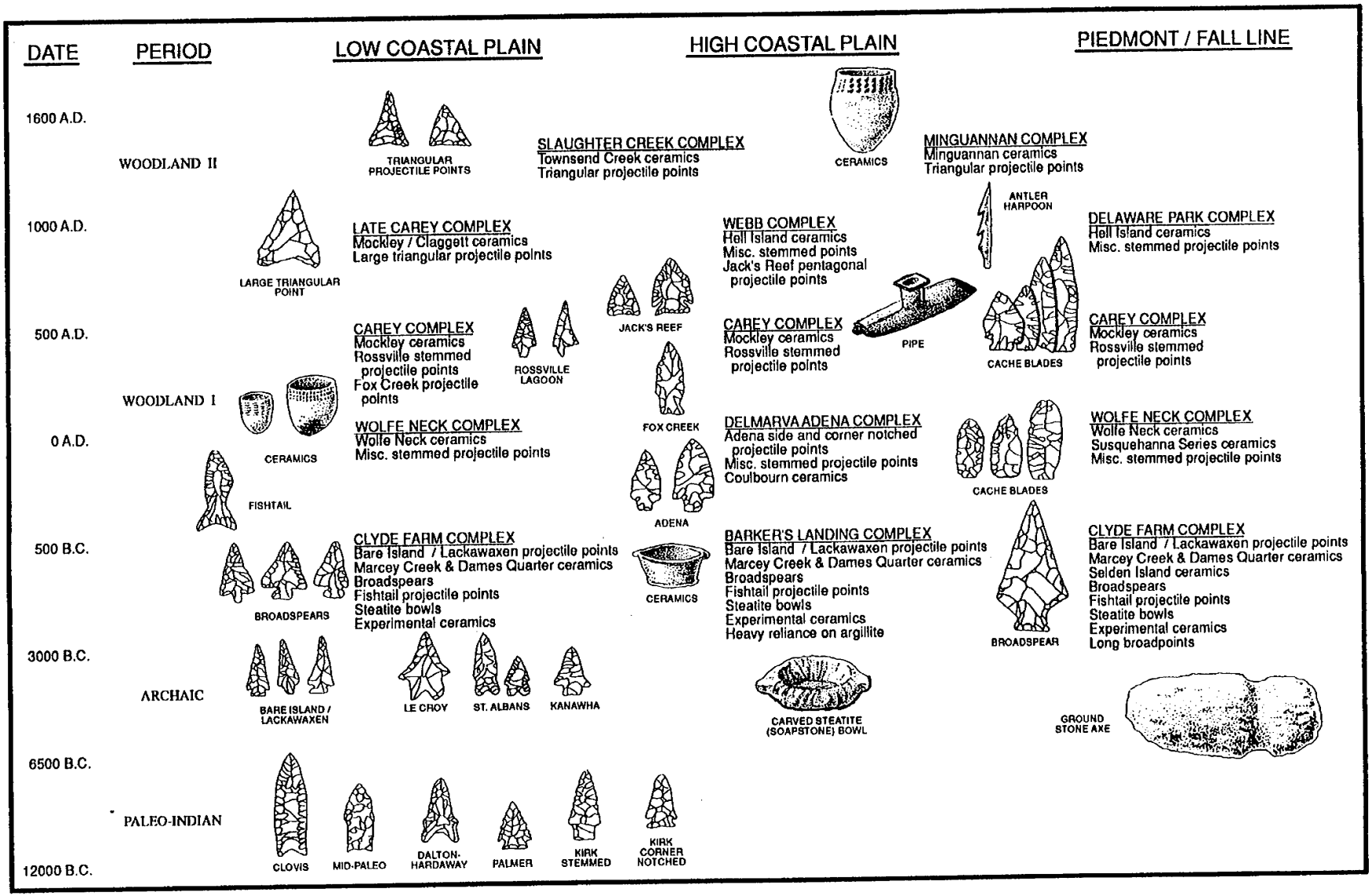
Tool kits of Paleo-Indian groups were oriented toward the procurement and processing of hunted animal resources. A preference for high quality lithic materials is apparent in the flaked stone tool kits and careful resharpening and maintenance of tools was common. A mobile lifestyle in which groups focussed on game-attractive environments is hypothesized with a social organization consisting of single and multiple family bands. Throughout the 5,500 year time span of the period, this basic adaptation remains essentially uniform, although some adjustments occur with the appearance of Holocene conditions in the latter part of the Paleo-Indian Period.

Numerous Paleo-Indian point finds are noted for central Delaware, although all are surface find spots which shed little light on Paleo-Indian lifeways on the Delmarva. These finds are usually made on well-drained knolls adjacent to poorly-drained areas. The Hughes Paleo-Indian Complex (sites 7K-E-10, 7K-E-24, and 7K-E-33), to the southwest of the project area, produced several varieties of fluted and notched points from well-drained sites adjacent to a number of different types of swampy settings (Custer 1984a:58). Also in central Delaware, it is hypothesized that bay/basin features may have attracted Paleo-Indian sites (Custer et al. 1983), although no clear associations have been demonstrated.

Archaic Period (6500 B.C. - 3000 B.C.)

The Archaic Period is characterized by an adaptation to the fully-emerged Holocene environments of Delaware. Mesic forests of oak and hemlock were predominant, while the accompanying reduction of grasslands in the face of warm and wet conditions caused the extinction of many of the grazing animals hunted during Paleo-Indian times, although browsing species such as deer flourished. Sea level rise is also associated with the beginning of the Holocene in Central Delaware, the major effect of which would have been to raise the local water table, thereby creating a number of large interior swamps. Adaptations shifted from the hunting focus of the Paleo-Indian Period to a generalized foraging pattern in which plant food resources played a more prominent role. Swamp settings, such as at Churchman's Marsh in northern Delaware, supported large base camps, as indicated by remains at the Clyde Farm site. A number of small procurement sites in favorable hunting and gathering locales are known from central and southern Delaware.

FIGURE 5
Prehistoric Chronological Chart



With the addition of plant processing tools such as grinding stones, mortars, and pestles, Archaic tool kits were more generalized than those of Paleo-Indian groups. A mobile lifestyle was still common, with a wide range of resources and environmental settings utilized on a seasonal basis. A shifting band level of organization which saw the waxing and waning of group size in response to seasonal resource availability is evident.

Woodland I Period (3000 B.C. - A.D. 1000)

The Woodland I Period coincides with dramatic local climatic and environmental shifts that seem to be part of larger scale changes occurring throughout the Middle Atlantic region at this time. Pronounced warm and dry conditions set in, lasting from 3000 B.C. to 1000 B.C. Mesic forests were replaced by xeric forests of oak and hickory, and grasslands again became common. Some interior streams dried up, but the overall effect of these changes was an alteration of the environment, not a degradation. Continued sea level rise at a reduced rate made many areas of the Delaware River and Bay shore the locations of large brackish water marshes which were especially high in productivity.

These changes in environment and resource distributions brought about a radical shift in adaptations for prehistoric groups. Important areas for settlements include the major river floodplains and estuarine swamp/marsh areas. Large base camps are evident at several settings in Central Delaware, such as at the Barker's Landing, Coverdale, Hell Island, and Robbins Farm sites. These sites seem to have been occupied by larger groups than Archaic base camp sites and may have been the loci of year-round habitations. The overall tendency in this Period is toward a more sedentary lifestyle.

Woodland I tool kits show some minor variations as well as some major additions from previous Archaic tool kits. Plant processing tools become increasingly common, indicating intensive harvesting of wild plant foods that may have approached the efficiency of agriculture by the end of the Woodland I Period. Chipped stone tool assemblages changed little from the preceding Archaic Period, save for the introduction of broad-blade, knife-like processing tools. The addition of stone, and then ceramic, vessels is also seen. These items enabled more efficient cooking of certain foods and may also have functioned as storage containers for surplus plant foods. Storage pits and house features are also known for Northern Delaware during this period from sites such as Clyde Farm and Delaware Park.

Social organizations also seem to have undergone radical changes during this period. With the onset of relatively sedentary lifestyles and intensified plant harvesting which might have yielded occasional surpluses, incipient ranked societies may have developed. Potential indicators of this include extensive trade and exchange in lithic materials for tools as well as non-utilitarian artifacts, and caching of special artifact forms.

Woodland II Period (A.D. 1000 - A.D. 1650)

In many areas of the Middle Atlantic, the Woodland II Period is marked by the appearance of agricultural food production systems; however, in the Coastal Plain of Delaware, no such shift in subsistence strategies is apparent (Custer and Cunningham 1986:24). Woodland I settlements, especially the large base camps, continued in many instances to be occupied during the Woodland II Period, with very few changes in basic lifestyles and overall artifact assemblages indicated (Stewart, Hummer and Custer 1986). Intensive plant utilization and hunting remained the basic subsistence activities up to European Contact. Similarly, no major changes are seen in social organization for the Period in central Delaware.

Contact Period (A.D. 1650 - A.D. 1750)

The Contact Period begins with the arrival of the first substantial number of Europeans in Delaware. The period remains enigmatic for Delaware due to the paucity of known archaeological sites that clearly date to this time. 7NC-E-42 in northern New Castle County is the only Contact component yet investigated in the State (Custer and Watson 1985). Its small size, impoverished assemblage of European goods, and the persistence of aboriginal lithic technology indicated at the site contrasts with the much larger Contact manifestations known from neighboring southeastern Pennsylvania and elsewhere. These findings support the belief that Native American groups in Delaware interacted little with European groups at this time, and were under virtual domination of the